

Pedagogies

THERE ARE THOSE WHO BELIEVE that professional education is a corrupting influence that must be kept at bay in order to preserve the purity of the mission of liberal education. At the Carnegie Foundation for the Advancement of Teaching, we disagree. We are engaged in a long-term program of research on how professionals are educated, even as we collaborate with the Association of American Colleges and Universities (AAC&U) and with the Wabash Center for Inquiry in the Liberal Arts on studies in liberal education. We pursue these

two efforts concurrently and interactively

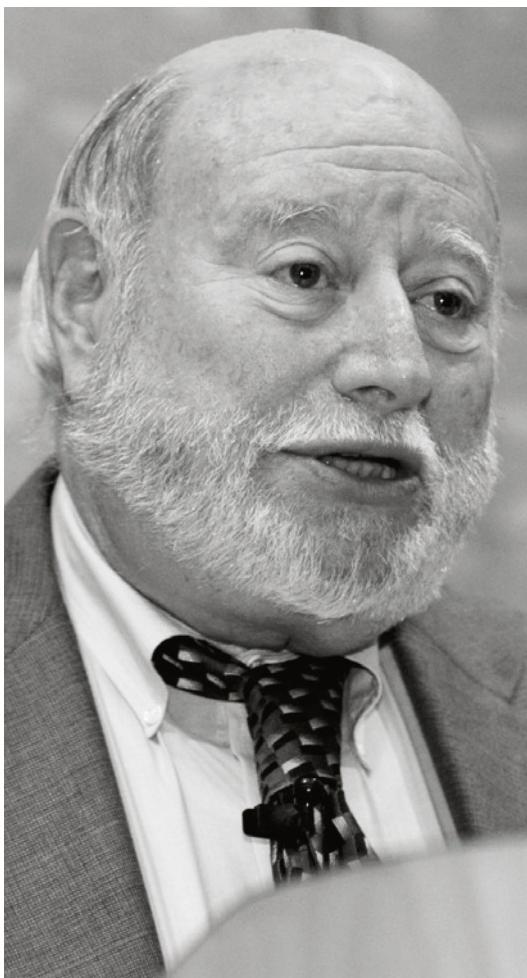
because we assert that each field has much to learn from the other. Professional education poses compelling pedagogical challenges that can and should inform all sectors of education, including undergraduate liberal education. Of course, studying professional education is not new to us. We began in 1910 with the Flexner Report, the first major study done by the foundation, which irreversibly changed this country's education of physicians.

In professional education, it is insufficient to learn for the sake of knowledge and understanding alone; one learns in order to engage in *practice*. Professional education involves teaching ideas, facts, and principles so that they can contribute to skilled professional practice. Professional pedagogies are continuously attempting to forge connections between key ideas and effective practice. But a true professional does not merely practice: he or she performs with a sense of personal and social responsibility. In the work of a professional, the performances of practice must not only be skilled and theoretically grounded; they must be characterized by integrity, by a commitment to responsible, ethical service.

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That said, it's also insufficient to claim that a combination of theory, practice, and ethics defines a professional's work; it is also characterized by conditions of inherent and unavoidable uncertainty. Professionals rarely can employ simple algorithms or protocols of practice in performing their services. How then does a professional adapt to new and uncertain



LEE S. SHULMAN is president of the Carnegie Foundation for the Advancement of Teaching.

of Uncertainty

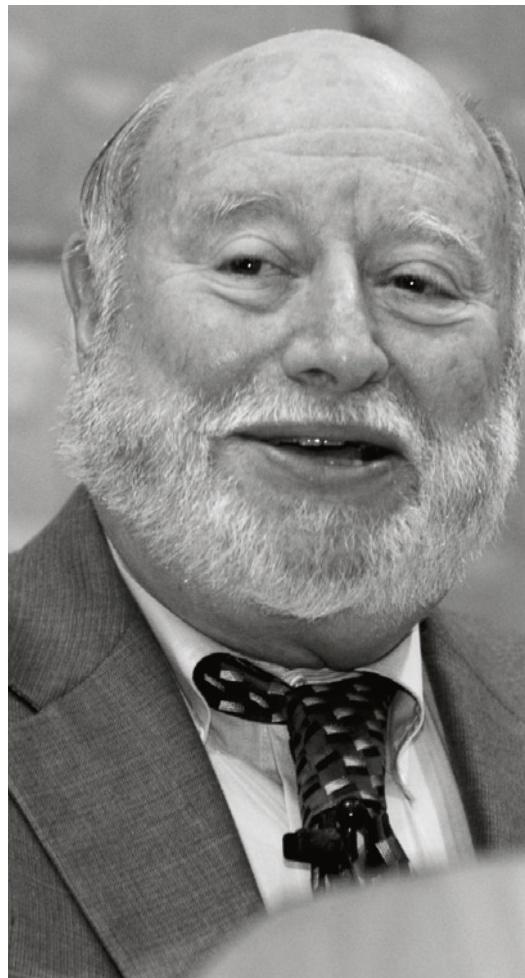
circumstances? She exercises judgment. One might therefore say that professional education is about developing pedagogies to link ideas, practices, and values under conditions of inherent uncertainty that necessitate not only judgment in order to act, but also cognizance of the consequences of one's action. In the presence of uncertainty, one is obligated to learn from experience.

Are there connections between these ideas and the goals of liberal education? I would say that learning ideas, practices, and values, and developing the capacity to act with integrity on the basis of responsible judgments under

uncertainty, and to learn from experience, is a reasonable description of what liberal learning should be about, as well.

On rounds

In January, I conducted a site visit to the teaching hospital of a major American medical school. These visits are an integral part of our ten-year program of research on how lawyers, engineers, clergy, school teachers, nurses, and physicians are taught and how they learn. At the teaching hospital, I joined a team of students and faculty in the daily ritual of clinical rounds. I use the term "ritual"



**Lee S. Shulman,
Annual Meeting**

quite precisely: they follow the same pedagogical pattern daily as they move from patient to patient and review their status. The clinical rounds team included a chief resident, a third-year resident, two first-year residents, two third-year medical students beginning their internal medicine rotation, and a pharmacy student on internship. Each of seven patients comprised a “lesson” within a unit of instruction. We stopped outside every room. The resident or medical student responsible for that patient gave a report that followed a strict outline. We talked about what had changed from the previous day. Patients ranged from someone who had been in the intensive care unit for less than twenty-four hours to one who had been in a coma for thirty days. After thirty days of clinical investigation, they still didn’t know the causes of this patient’s condition.

These were indeed pedagogies of uncertainty; students at all levels were learning how to act under conditions where knowledge is limited yet actions must be taken. Patient after patient, the same routine continued. At some bedsides, they only discussed; at others, they would listen to an interesting heart sound or palpate the abdomen. I had come to observe the learners and their processes of learning, but the longer I stayed the more it became unclear who the learners were. The people teaching were also learning, and roles reversed and shifted constantly.

Next, the chief resident discussed what had occurred during the rounds with the third-year resident in a preceptor interaction, essentially like a supervising teacher with a student teacher. They reviewed how rounds had gone pedagogically and talked about what other questions one might have asked, what other aspects of patients’ conditions one might have noted, and how well patients were managed and whether to do something different. We then moved to teaching rounds, in which the chief resident presented a didactic seminar on pulmonary function tests. Finally, we went to M&M, Morbidity and Mortality, otherwise known as, “Where Did We Screw Up and What Can We Learn from It.” Pretty much the same group from morning rounds reconvened, joined by other faculty. They reviewed at an institutional level one of their most persistent failures, namely the unacceptably high infection rate associated with running central lines into arteries. Data indicated that the

infection rate is higher when lines are run from certain locations in the body, and lower when run from other locations. Everyone in the system was learning. In fact, an assistant professor ran the session, with full professors learning alongside third-year clerks.

This communal questioning and learning is compelling. Where in higher education do we find an institutional pressure to come together and ask why students are not learning mathematics or economics well, and what to do institutionally about that? What I watched at this medical school was an institution knowing, caring, and operating corporately to improve student learning.

But let’s focus on the pedagogy, one of active student participation. It began with students reporting and then becoming interactive, pushing one another to clarify, elaborate, extrapolate, and explain, finally concluding with plans for what to do next. The “doing” included not only medical interventions, but also strategies for how to relate to human beings affected by tragedy, for what to say to family members, and what to do if the plan doesn’t go well. The pedagogy is one of inherent contingency and uncertainty. The content of instruction is uncertain. Because the teacher doesn’t always know what the students will report until she hears them, she has to deal with substantive uncertainty even though the learning protocol itself is fixed in ritual. This is an important point: it’s routine, yet never the same; it’s habitual, but pervaded by uncertainty.

Law schools

Three years earlier, I had a parallel experience. We were studying legal education, which has the distinctive pedagogy of the case dialogue method. In 1875, Christopher Columbus Langdell, then dean of the Harvard Law School, decided that the lecture method of teaching black-letter law made no sense. And so he invented a new pedagogy that gave greater agency to students to engage with cases, analyze them, defend their explanations, and argue with one another, all under the control of a Socratic teacher. Across America today, from law school to law school, the pedagogy of a contract law class is the same at all institutions. They practice what we at the Carnegie Foundation have been calling a “signature pedagogy.” It pervades all courses in the first year and cuts across all institutions teaching

law. If you ask people what they are teaching, they'll answer that they're teaching folks "to think like a lawyer," and, sure enough, a mode of thinking is being developed across the profession. The students catch on very quickly.

In addition to pervasiveness and routine, the level of engagement in first-year law classes stands out. At any moment the professor may say, "And Mr. Shulman, do you agree with Ms. Smith's account of the case? If you do, I'd like you to repeat in your own words her account. If you don't, begin by giving your account of Ms. Smith's courageous attempt to summarize the facts of the case and then offer your own argument." While impressed by the

engagement level of students in medical rounds, one might counter that it's not hard to keep six students engaged. Well, a contract law class might have 120 students in a semi-circular lecture hall—curved so that students can see one another, and with the faculty member typically at the bottom of the circle. The faculty member always makes eye contact with students when engaging in quasi-Socratic dialogue. The level of engagement with 120 students is the same qualitatively as with six students in clinical rounds. Another interesting commonality is that both pedagogies begin with the faculty member saying "tell me about your case."



Annual Meeting

Signature pedagogies

Although distinctive, signature pedagogies share some general features. By studying the pedagogies of professions and their signatures, we gain insights into teaching that cross both professional lines and the divide between the liberal and the professional. Educators of lawyers can learn from educators of physicians. For example, lawyers are not taught to practice; law schools are nearly devoid of clinical instruction. Law schools do a brilliant job of teaching students to think like a lawyer, a marginal job of teaching students to practice like a lawyer, and a questionable job of teaching them to be professionals with a set of values and moral commitments. The pedagogies of medicine, however, put enormous emphasis on learning to practice the profession. Education is a seamless continuum in which each segment has consequences for all others, and the pedagogies of the professions also may yield insights into teaching in the liberal arts or even in K–12 settings.

Let's return to my hypothesis about the distinctive features of signature pedagogies: they're pervasive, routine, and habitual. These features are adaptive, because learning to do complex things habitually in routine ways liberates the mind to concentrate on other things. We all know the dangers of routine. There are great virtues to the routines of signature pedagogies, however, and these routines differ by purpose. Legal education routines develop habits of mind. Clergy education routines develop habits of the heart. Clinical rounds in medicine or studio design in architecture or engineering develop habits of the hand, of practice and performance. Moreover, routines permit students to spend far less time figuring out rules of engagement, which enables them to focus on increasingly complex subject matter. One persistent error teachers make is to get a bright idea for a different way of teaching and then to spring it on students without preparation. Suddenly, a teacher unleashes a combination of group collaborative learning with portfolios and technology and expects students to respond positively to this new game. The students don't even know how to begin.

Another universal feature of signature pedagogies is that they make students feel deeply engaged. Students feel highly visible and even vulnerable. A persistent problem of most forms of education is that they permit student

invisibility, which breeds disinterest and leads to zoning out and non-learning. Learning requires that students feel visible and accountable. Signature pedagogies make it hard to disappear and become anonymous. Furthermore, signature pedagogies tend to be interactive, meaning students are not only accountable to the teacher but also to fellow students: just because it's your turn to talk doesn't mean you can say whatever you want. In fact, "accountable talk" is one feature of signature pedagogies. The student must build on what somebody before has said; he or she must respond, must offer counterargument, new data, and cogent commentary. So signature pedagogies breed accountability of performance and interaction, as well as simply removing the cloak of invisibility.

This accountability leads to a much higher affective level in class—students feel more anxiety when participating in signature pedagogies. That anxiety derives from the risk involved in putting forward ideas and defending them, from knowing that one must be prepared for class, from the fear of making a fool of oneself. The anxiety is either adaptive or paralyzing. Managing levels of anxiety is a major responsibility of the teacher, but is also a responsibility of the collective. Because they all feel it, students must learn how to simultaneously challenge and support each other's thinking. In these settings, the presence of emotion, even a modicum of passion, is quite striking—as is its absence in other settings. I would say that without a certain amount of anxiety and risk, there's a limit to how much learning occurs. One must have something at stake. No emotional investment, no intellectual or formational yield.

The last thing I'll say about signature pedagogies is a contradiction, for I'll make the Darwinian claim that they survive because they succeed. At the same time, I'll make the Newtonian claim that some things continue just because nothing deflects them in another direction—pedagogical inertia. Despite inertia, signature pedagogies survive because they succeed more often than they fail in producing student learning. However, almost all signature pedagogies need repair; there's likely a price to be paid in achieving a signature pedagogy. Case dialogue is a powerful pedagogy, but law schools have to do something about the fact that, as effective as they are with

habits of the mind, they don't teach habits of the hand or of the heart. Medicine also must do something, because medical training takes too long. Also, unlike in engineering, where students refer back to math and physics in designing mathematical models, clinical reasoning rarely references the basic sciences. Why? Moreover, the medical curriculum is disappearing. The essence of clinical rounds depends upon sick people going to the hospital and staying in bed. But how will anybody learn about gall

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bladder surgery if the patient is sent home after eight hours, which is standard these days? Even signature pedagogies must adapt to changes in the conditions of work and in society and to evolving norms of practice.

Ritualized patterns of all kinds—direct teaching, laboratory investigation, collaborative design, Socratic exchange, clinical rounds—model values and raise emotions. They make signature pedagogies, for better or worse, pedagogies not only of uncertainty but of formation, because students develop personal identities



Annual Meeting

and values growing out of pedagogical interactions. I say for better or worse because sometimes signature pedagogies don't model what we ultimately desire in professionals. For example, in law classes dealing with damages (torts), someone raises a hand and says, "I know that's the law, but it doesn't seem fair." And all across the country the professor responds, "This class is not about fairness, it's about the law." As Karl Llewellyn notes in his lovely book *The Bramble Bush* (1981), law school's first year requires you to check your conscience at the door and learn to think and reason like a lawyer. The challenge of legal education is to ensure students don't forget to reactivate their consciences before they leave. Alas, that's too often an example of the failure of a pedagogy of formation. Therefore, the Carnegie Foundation is studying the education of ministers, priests, and rabbis and trying to understand the pedagogies that characterize formation in those professions.

I could say so much about the education of clergy, but I'll make one point only. A key signature pedagogy of the clergy is homiletics, learning to preach. Teaching someone to give a sermon is not a course in performance or rhetoric. As Evans Crawford, for many years dean of the chapel at Howard University Divinity School and professor of homiletics, described it to me, homiletics involves making a connection between interpretations of sacred text and critical analysis of social, political, and personal problems in a theologically authentic way—and giving a heck of a good sermon that moves people emotionally to engage in that connection. Note the importance of connection. One connects hermeneutics, the deep, interpretive understanding of sacred text, to constantly shifting political, personal, and societal problems, and further connects these two realms by acts of persuasion and inspiration, conducted by and large through the spoken word.

It's no accident that the practical action attached to the Bible course I audited at Howard University Divinity School was called "prophetic ministry." Students don't just study Hosea and Jeremiah; they go out into the field and act in a Hoseac or Jeremiac way, whether lobbying on the Hill or working with the homeless. This is powerful stuff. It's the essence of what is meant by moving ideas into practice and transforming practice into social responsibility and

moral behavior. And all of this is done under conditions marked by the shifting sands of the uncertain world around us. That's what these pedagogies of uncertainty seek to achieve.

Raising expectations and keeping promises

In translating AAC&U's expressed mission for the next ten years regarding liberal education and what students can and should learn, I want to convey excitement about "raising our expectations and keeping our promises." We all must get smarter and become much less sanguine about what we can and cannot do pedagogically. Part of what we have to learn we must learn from one another within the universities and colleges, broadly construed. One source of learning, I argue, is the study of successes and failures associated with signature pedagogies of the professions. Are there signature pedagogies in undergraduate liberal education? One could argue that such a signature pedagogy is, by default, the large lecture. But it lacks precisely the distinctive features of signatures that make them so powerful. Students are disengaged, invisible, unaccountable, and emotionally disconnected most of the time. Some of us would plead that liberal education's signature pedagogy should really be the seminar, featuring kinds of interactions between students and teacher that more readily mirror signature pedagogies in the professions. And I believe we are learning that we can accomplish many of those features even within a large-group setting.

At AAC&U's 2005 annual meeting, journalist and Carnegie Foundation Visiting Scholar John Merrow previewed his documentary "Declining by Degrees" and featured the case of Tom in his presentation. Tom teaches astrophysics (every undergraduate's first love) to over one hundred highly engaged students, almost none of whom are majoring in the area. As I analyzed what Tom was doing—how he organized instruction, used wireless response devices distributed to the students (clickers), moved from large- to small-group interaction and back within a traditional lecture hall—I realized he was modeling features of signature pedagogies. Students had lost invisibility because they had to engage in an accountable click, and their names were on that clicker. When students vote for an option on the screen, everyone knows how

Are there signature pedagogies in undergraduate liberal education?

they voted; they're not entitled to anonymity. Then students talk to one another and get to revote. Tom was, to me, a vision of the possible. He's not some charismatic figure.

He's an ordinary teacher in a discipline that's really tough to teach to people who aren't majoring in it. But he feels it is his responsibility that those students learn astrophysics. And he's not just meeting them halfway; he's going all the way and bringing them along. That kind of teaching should be within the grasp of any faculty member. It is not magic, it's pedagogy.

I shall conclude by returning to the medical Morbidity and Mortality conference that reported on infection rates of central lines. During the last half of the meeting, the facilitator noted that every major hospital has a problem with high infection rates for central lines, especially in the femoral artery. Unfortunately, it's easiest for medical practitioners to run a line in the femoral artery. (Perhaps running femoral lines is analogous to running lecture courses; they're not necessarily the most effective, but they deliver the goods to the largest number at the lowest cost.) In any case, the facilitator mentioned that Johns Hopkins had decided that the high infection rates were unacceptable. The medical school dean and the university president met with the teaching hospital staff and decided they knew enough to reach a zero percent rate of infection. The problem was not absence of knowledge of best practice, but absence of discipline and commitment to apply that knowledge. Therefore, they developed a protocol for running central lines.

The protocol involves things such as how carefully and frequently hands are washed, and not making things easier on oneself by using the same line to draw blood and to deliver medication, because the odds for an infection zoom up every time that happens. Nurses enforce the protocol and oversee each procedure, and nurses are empowered to abort a procedure as soon as they see protocol being violated, whether by an intern or by the department chair. Every nurse was handed two phone numbers—the home phones of the medical school dean and the university president—and was told that if a physician didn't follow protocol and refused to abort the procedure, they were to phone one of these numbers,

even at 3:00 a.m. It only happened once.

The infection rate at Johns Hopkins for that procedure is now approaching zero.

Like infection rates, the failures of liberal education are often procedural. In the Morbidity and Mortality conference, the discussion of acceptable levels of infection sounded like arguments about acceptable levels of student failure. If one-third of students drop out in the first year, some may be ready to claim that those students simply shouldn't have entered college. What if a hospital said that if it lost a third of patients, those patients never should have been admitted because they were too sick? Faculty and teaching institutions have lots of impediments, just like physicians. But what if at some universities the president was called every time a student failed? We can do so much better, and research in the cognitive sciences and other fields supports this. I know we lack the resources. I know we lack the administrative and policy support. I know some students we inherit are already deeply wounded. Nevertheless, we have to make the commitment. We need to respond to the pedagogical imperative. And if we do, then raising expectations and keeping promises will not be empty rhetoric but prophetic ministry. We can hardly afford to do less. □

To respond to this article, e-mail liberaled@aacu.org, with the author's name on the subject line.

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